READING MATERIAL

AIR POLLUTION ALLOWANCE TRADING

There are several different types of pollution control measures that the government imposes on polluters to assure compliance with environmental regulations or otherwise achieve pollution reduction goals. This fact sheet briefly discusses the principal types of control measures, then presents an incentive-based pollution control system that allows the accumulation and trading of pollution allowances.

Traditional Approaches

Most Federal pollution control programs take one of two general approaches to reduce pollution emissions: command and control of the source of pollution or standards for the local environment. "Point source" controls impose standards on the discharge coming out of a facility (such as a factory), usually through a permitting system. One source control method imposes standards and allows the permittee to select the method to be employed to achieve the standards. Other "technology-based" controls use standards related to the performance standards of a certain technology, and "force" the technology on polluters. Either of these "end-of-the-pipe" programs may be imposed without regard to the cost of achieving the standard or taking into account the effects of other pollution discharges on the local environment.

The "local environment" method concentrates on the level of pollution in a designated area (such as a river segment or air within a city's boundaries), requiring some degree of pollution reduction when the designated area is out of compliance. This latter method may be used under the Clean Air Act, which requires States to prepare State Implementation Plans (SIPs) that detail how the State plans to enforce air standards. However, the method has been difficult to enforce given the large number of small individual air pollution sources that exist (such as automobiles).

Pollution Allowance Trading System

Under the Clean Air Act Amendments of 1990, the U.S. Environmental Protection Agency (EPA) established the Acid-rain Abatement Program that authorized the creation of a sulfur dioxide (SO_2) allowance trading system. An air pollution allowance trading program introduces market forces into pollution control, harnessing the incentives of the free market to reduce pollution.

The pollution allowance trading system program builds off both of the traditional approaches. The total amount of pollution to be allowed from certain similar sources (such as electric generation and other large "smokestack" plants) within the designated area for a specified period (typically one year) is determined based on local clean air standards and the goals of the emission reduction program. The total is then divided into allowance units, which are auctioned off to the sources. "Allowances" are in units of pollutant emitted, such that a polluter will use up its allowances as it pollutes.

The key to the system is that these allowances may be traded between sources, or may be banked. At the end of the period, each source must have enough allowances to balance its emissions for that period, otherwise a penalty on each excess unit of pollution is imposed. The program further penalizes a non-complying source by reducing its allocation for the next period by the number of excess units, which are removed from the program. Note that the system imposes

ceilings on the total emission from any one source, regardless of the number of allowances held.

The allowance trading system contains an inherent incentive for utilities to conserve energy, since for each unit of pollutant that a source avoids emitting, one fewer allowance must be retired. Energy-efficient sources may then sell their surplus allowances at a profit. As an additional incentive, the government may set aside a reserve of allowances to stimulate efficiency. Extra allowances from the reserve may be available to sources that curtail emissions or invest in non-polluting technologies.

The following is a simple example of how the system operates. Utility X can implement a certain pollution control measure for $100,000. Without an allowance system, this cost would be passed on to consumers or paid for by shareholders, and may not be implemented since pollution reduction benefits are difficult to quantify. However, under an allowance trading system, this measure also will save 4 allowances. Utility Y (in the same region) does not implement reduction measures, and is going to pay $250,000 in fines after using up its allowances. Utility Y estimates that it is 4 allowances short for the period, and is then theoretically willing to pay up to $250,000 for 4 allowances. Hence, Utility X is rewarded when it implements pollution control measures and sells surplus allowances, in this example to the tune of up to $150,000 (the $250,000 fine Utility Y is facing minus the $100,000 invested in pollution reduction equipment).

The goal of this system is to utilize market incentives to reduce pollution by allowing polluters to select their own compliance strategy. An effective allowance trading system should have enough decision options open to sources to allow innovation and reduction. For example, under a program designed to reduce sulfur dioxide (SO_2) emissions from electric power plants that use fossil fuels, a participating source may choose to repower its units, switch to cleaner burning fuel (such as low sulfur coal), or shift some of its production from dirtier units to clean ones. The source also may choose to install pollution reduction technology or reduce output either through conservation of capacity or through increased efficiency. In any event, the program allows the participating source to combine options in any way they see fit to tailor their compliance plan to their present capabilities.

References and Suggested Reading

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